

## Fuse for Energy Storage System

Larger battery pack capacity design can achieve longer battery discharge time for energy storage systems. At the same time, each battery unit within the battery pack represents an energy source, and any fault or short circuit in the system is highly likely to cause a large amount of energy to pour out.

The accompanying high voltage and high current can easily cause significant harm to personnel, as well as the risk of loss of energy storage equipment and surrounding property.

As a fuse for overcurrent protection (or short circuit protection), it plays a crucial role in the circuit safety protection of energy storage systems, mainly used in battery modules, battery clusters, energy storage system as a whole, AC/DC conversion inverters, etc.

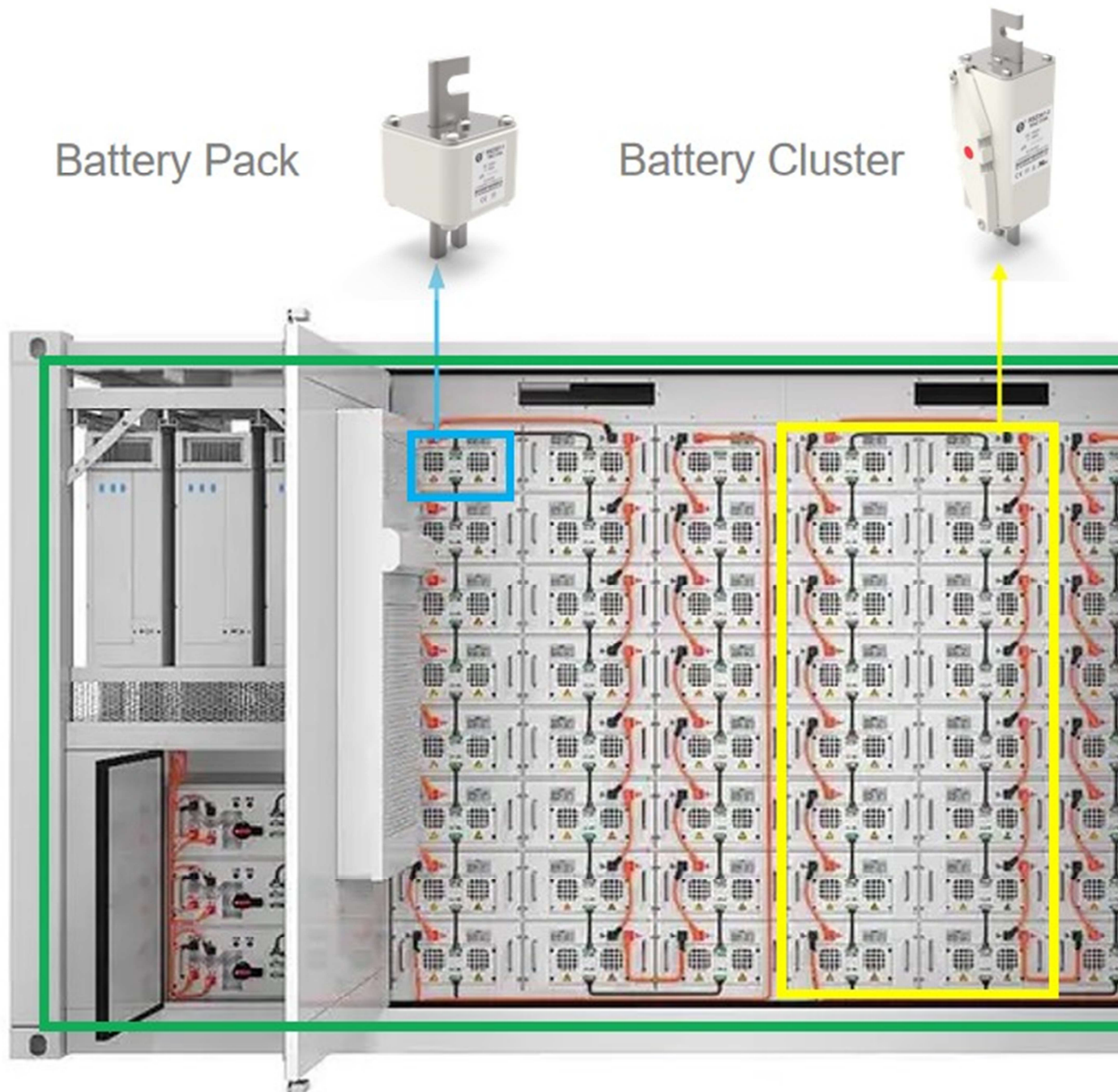


As a security part for overcurrent protection, fuses are often used in various types and specifications of energy storage systems and subsystems or equipment, including portable power bank, stacking home or residential storage system, industrial and commercial energy storage system, containerized energy storage system etc...

## **I. Fuses in Industrial Containerized ESS**

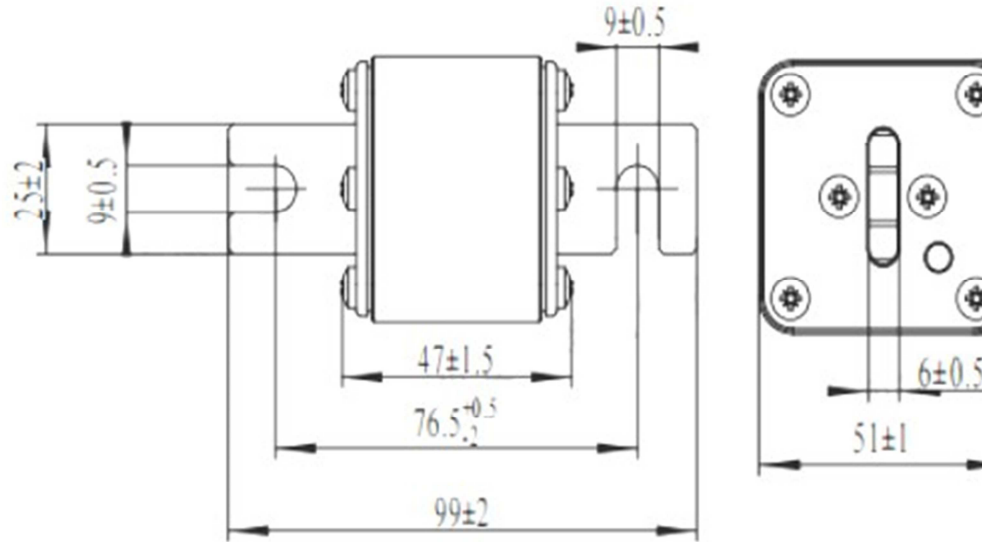
In order to show the application of the fuse in the energy storage system more intuitively, let's take the industrial containerized energy storage system.

A battery module or battery pack consists of numerous individual battery cells, multiple battery modules forming a battery cluster, and multiple series connected battery clusters forming the entire energy storage system. The layout of fuses in large containerized energy storage systems is as follows:



### RSZ307-1-TMZ (For Battery Pack)

The fuses distributed in the battery module or battery pack of the energy storage system are used for branch current control protection; usually, one fuse is used in each battery module.



\*Rated voltage: DC250V

\*Rated current: 200~450A

\*Segmentation capacity: DC50kA (10~15ms)

\*Compliant with standards: IEC60269, IEC60077, UL248

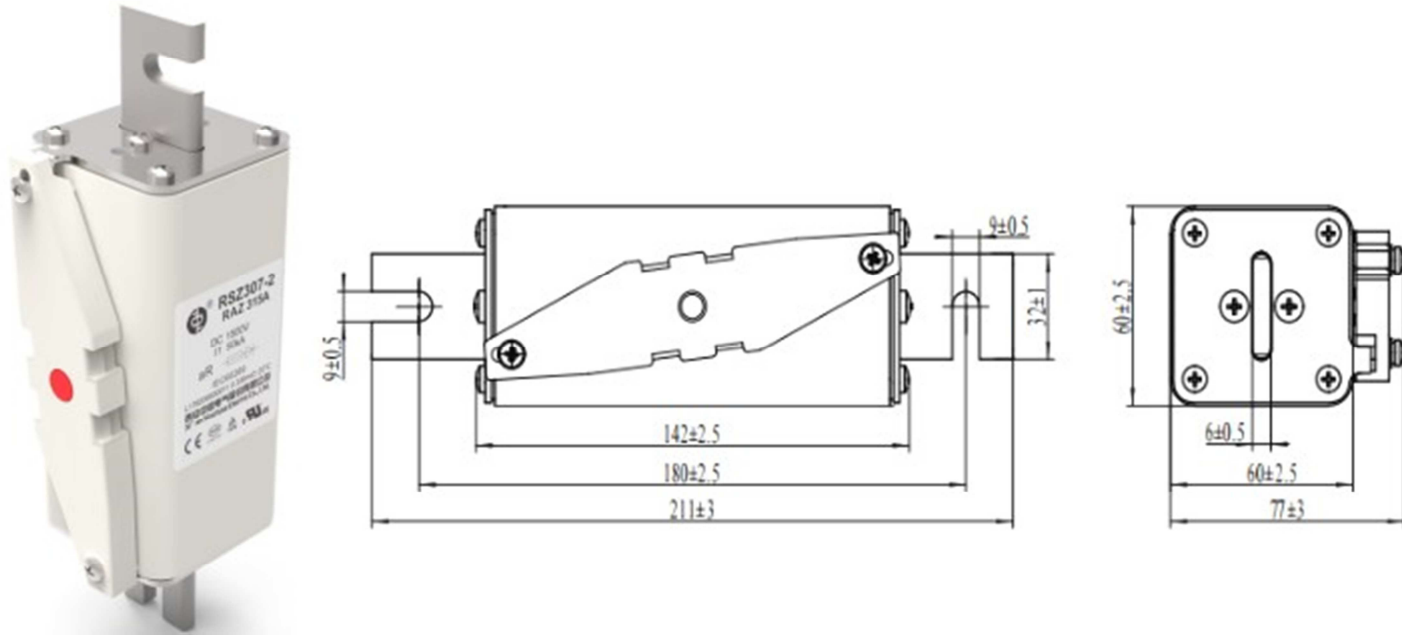
\*Weight: approximately 400g

\*Packing Info. 30pcs per carton

\*Ordering Part Number: RSZ307-1-TMZ-200A250V-N、RSZ307-1-TMZ-250A250V-N、RSZ307-1-TMZ-315A250V-N、RSZ307-1-TMZ-350A250V-N、RSZ307-1-TMZ-400A250V-N、RSZ307-1-TMZ-450A250V-N

**RSZ307-2-RAZ/RSZ307-2-QAZ** (For Battery Cluster)

Commonly used in battery cluster columns. Each battery cluster uses a fuse as overcurrent protection, with the following parameters:



\*Rated voltage: DC1500V

\*Rated current: 100~450A

\*Segmentation capacity: DC 150kA (10~15ms)

\*Compliant with standards: IEC60269, UL248

\*Weight: 1500g±10%

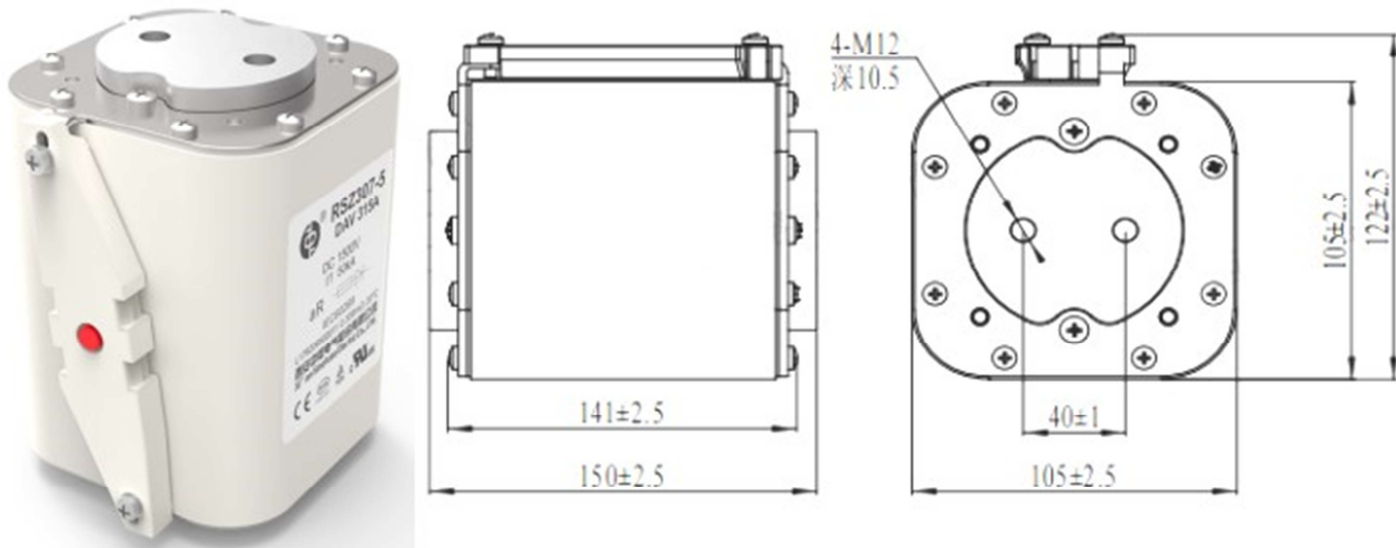
\*Packing Info. 6pcs per carton

\*Ordering Part Number:RSZ307-2-RAZ-100A1500V、RSZ307-2-RAZ-125A1500V、RSZ307-2-RAZ-160A1500V、RSZ307-2-RAZ-200A1500V、RSZ307-2-RAZ-250A1500V、RSZ307-2-RAZ-315A1500V、RSZ307-2-RAZ-350A1500V、RSZ307-2-RAZ-400A1500V、RSZ307-2-RAZ-450A1500V; RSZ307-2-QAZ-100A1500V、RSZ307-2-QAZ-125A1500V、RSZ307-2-QAZ-

160A1500V、RSZ307-2-QAZ-200A1500V、RSZ307-2-QAZ-250A1500V、RSZ307-2-QAZ-315A1500V、RSZ307-2-QAZ-350A1500V、RSZ307-2-QAZ-400A1500V、RSZ307-2-QAZ-450A1500V

### RSZ307-5-DAV (For Mainstream Cabinet)

Used in the overall cabinet of the energy storage system. A fuse is used in the main circuit of the energy storage system as the overall safety protection and control of the system, with the following parameters:



\*Rated voltage: DC1500V

\*Rated current: 450~1800A

\*Segmentation capacity: DC 150kA (10~15ms) / DC 250kA ( $\leq 4$ ms)

\*Compliant with standards: IEC60269, UL248

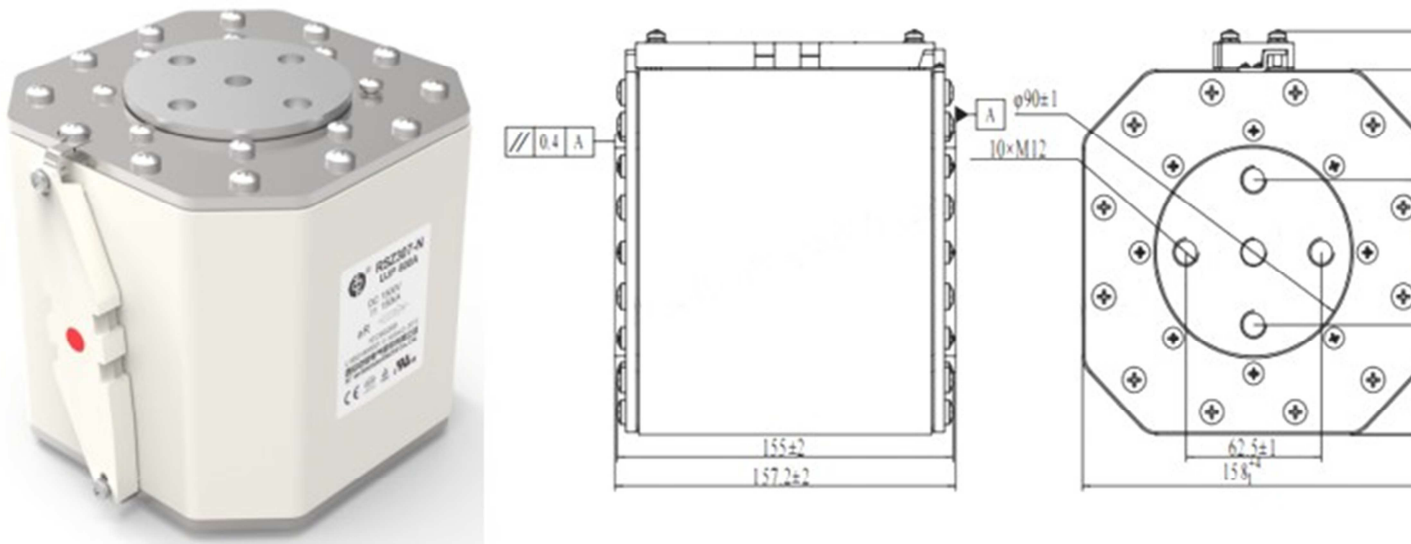
\*Weight: 4430g $\pm$ 100

\*Packing Info. 1piece per box, 2pcs per carton

\*Ordering Part Number: RSZ307-5-DAV-450A1500V、RSZ307-5-DAV-500A1500V、RSZ307-5-DAV-550A1500V、RSZ307-5-DAV-630A1500V、RSZ307-5-DAV-700A1500V、RSZ307-5-DAV-800A1500V、RSZ307-5-DAV-450A900V、RSZ307-5-DAV-1000A1500V、RSZ307-5-DAV-1100A1500V、RSZ307-5-DAV-1250A1500V、RSZ307-5-DAV-1400A1500V、RSZ307-5-DAV-1500A1500V、RSZ307-5-DAV-450A1600V、RSZ307-5-DAV-450A1800V

### RSZ307-N-UJP (For ESS Cabinet)

Used in the overall cabinet of the energy storage system, with the following parameters:



\*Rated voltage: DC1500V

\*Rated current: 3000A

\*Segmentation capacity: DC 150kA (10ms) / DC 250kA (4ms)

\*Compliant with standard: IEC60269

\*Weight: approximately 12055g

\*Packing Info. 1piece per carton

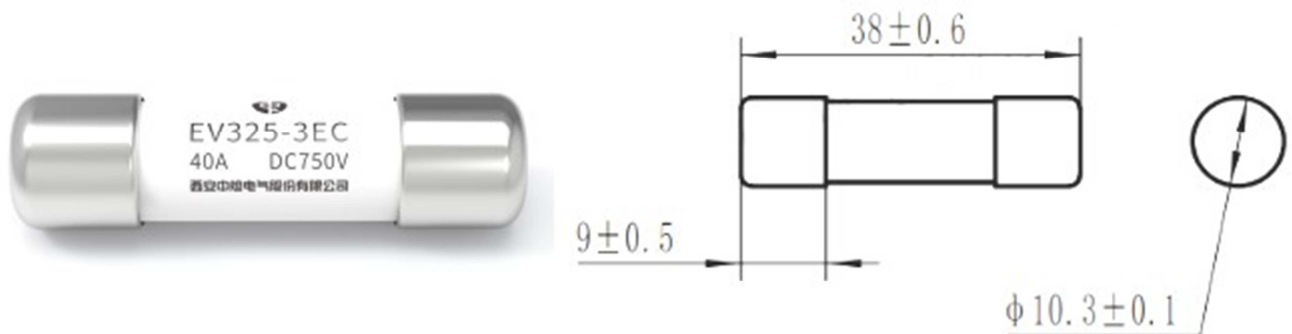
\*Match with WDK-Y auxiliary contact micro switch.

\*Ordering Part Number: RSZ307-N-UJP-1250A1500V, RSZ307-N-UJP-1400A1500V, RSZ307-N-UJP-1500A1500V, RSZ307-N-UJP-1600A1500V, RSZ307-N-UJP-1800A1500V, RSZ307-N-UJP-2000A1500V, RSZ307-N-UJP-2200A1500V, RSZ307-N-UJP-2400A1500V, RSZ307-N-UJP-2500A1500V, RSZ307-N-UJP-2600A1500V, RSZ307-N-UJP-2800A1500V, RSZ307-N-UJP-3000A1500V

## II. Fuses in Household / Residential / Commercial ESS

There're also fuses in stacked household/residential or commercial energy storage systems.

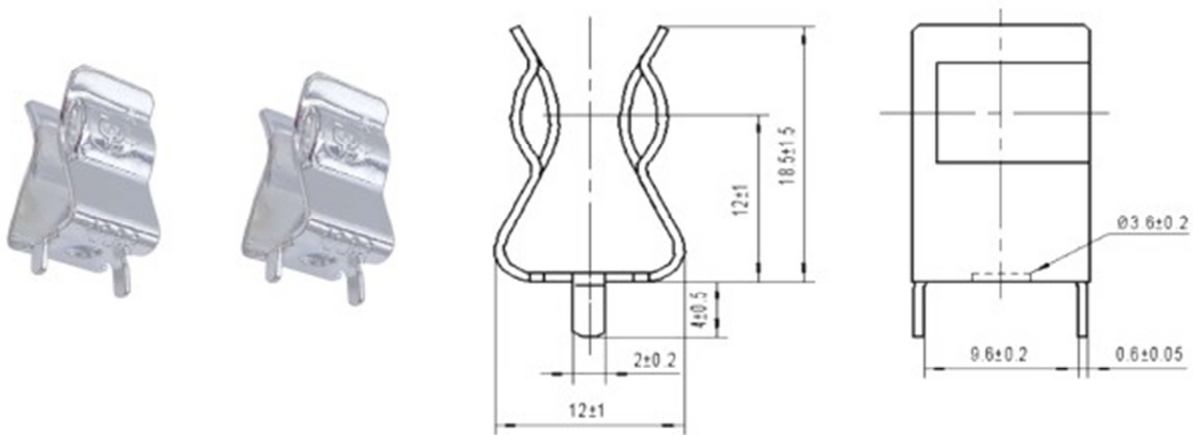
### EV325-3EC Series Fuses



**Description:** Rated voltage DC750V, current 10A~100A optional; Segmentation capacity 20kA (time constant  $2 \pm 0.5$ ms). Can be matched and used with PCB clips SJ1038.

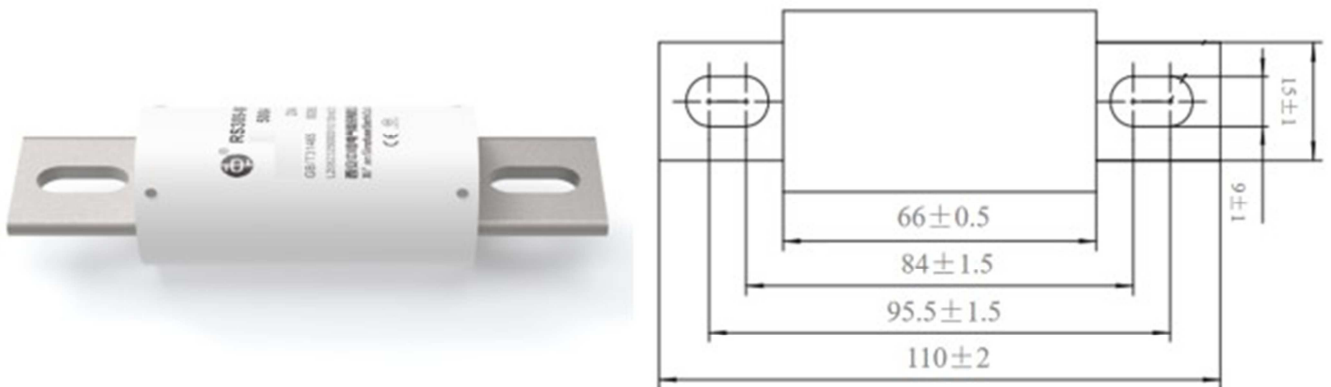
\* SJ1038 PCB Clips (Match EV325-3EC)





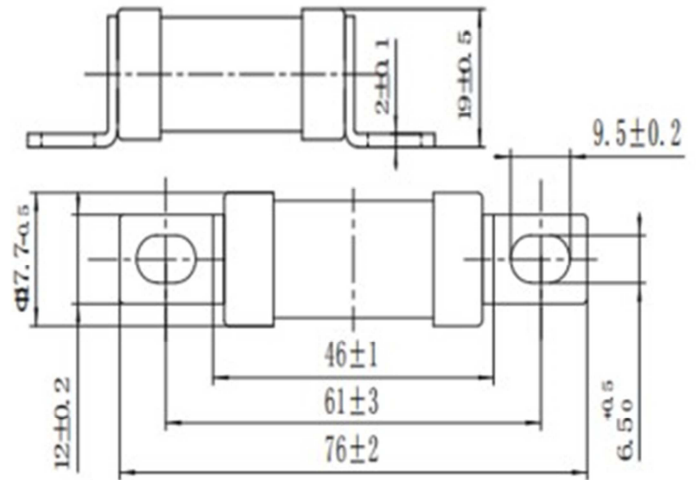
**Description:** PCB Clips for fuse, including EV325-3EC (1 fuse with 2 clips).

\* RS309-MF-S Series Fuses



**Features:** Rated voltage AC/DC700V, rated current 70~800A optional; segment capacity AC100kA/DC50kA (time constant 10-15ms); Products meet Rosh, has CE and UL certifications.

\* RS308-HB-4B Series Fuses

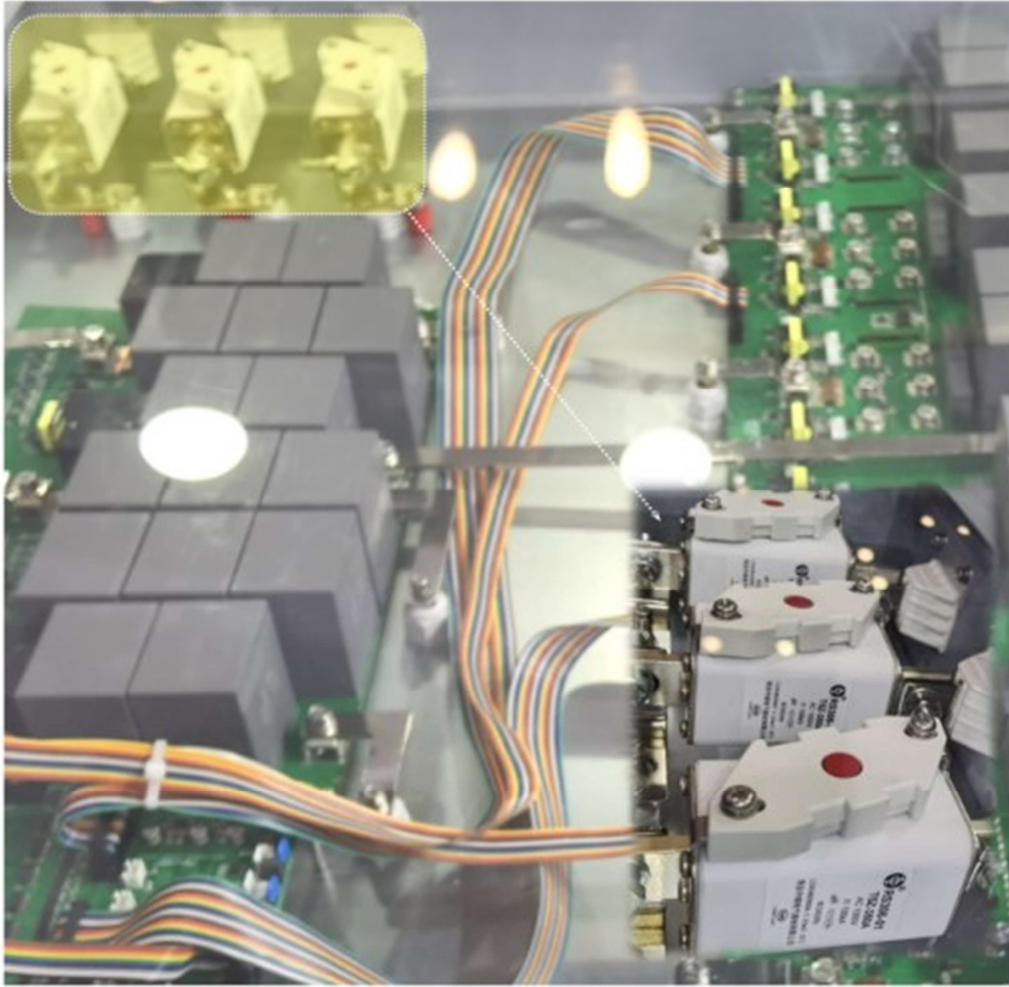


**Description:** Rated voltage DC750V/AC800V, rated current 10A-100A optional; Featuring strong current limiting and high breaking capacity [DC50kA (time constant 10ms)/AC100kA, power factor 0.2]; Product complies with Rosh and has CE, UL, and TUV certifications.

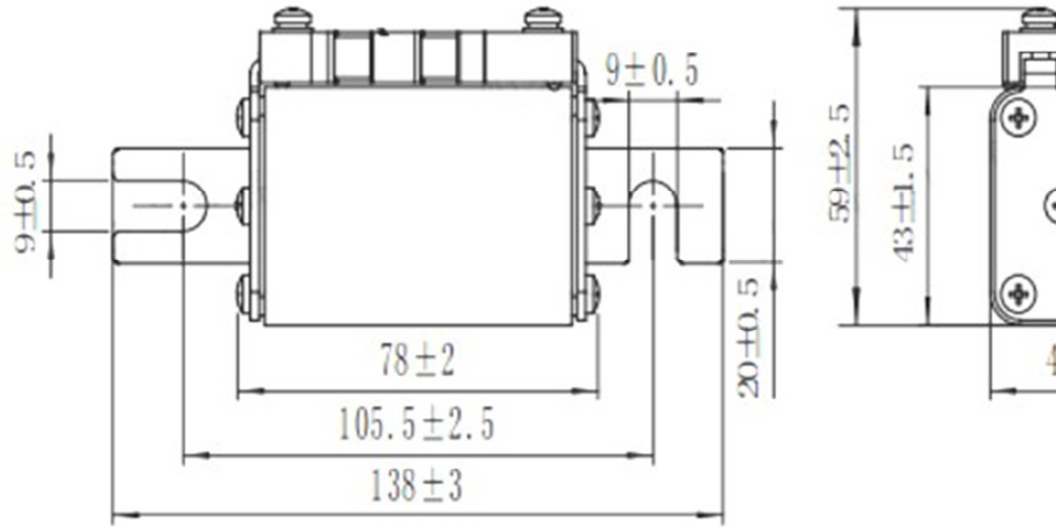
**Notes:** Other part numbers also include RS308-HB-4G, RS308-HB-4GB, RS308-HB-2H, RS308-HB-5M, RS308-HB-5N, RS308-HB-GG, RS308-HB-NN - rated voltage of DC550V/AC690V with rated current of 10A-710A optional.

### III. Fuses in ESS Subsystems

Fuses are used in the inverter module of energy storage systems.



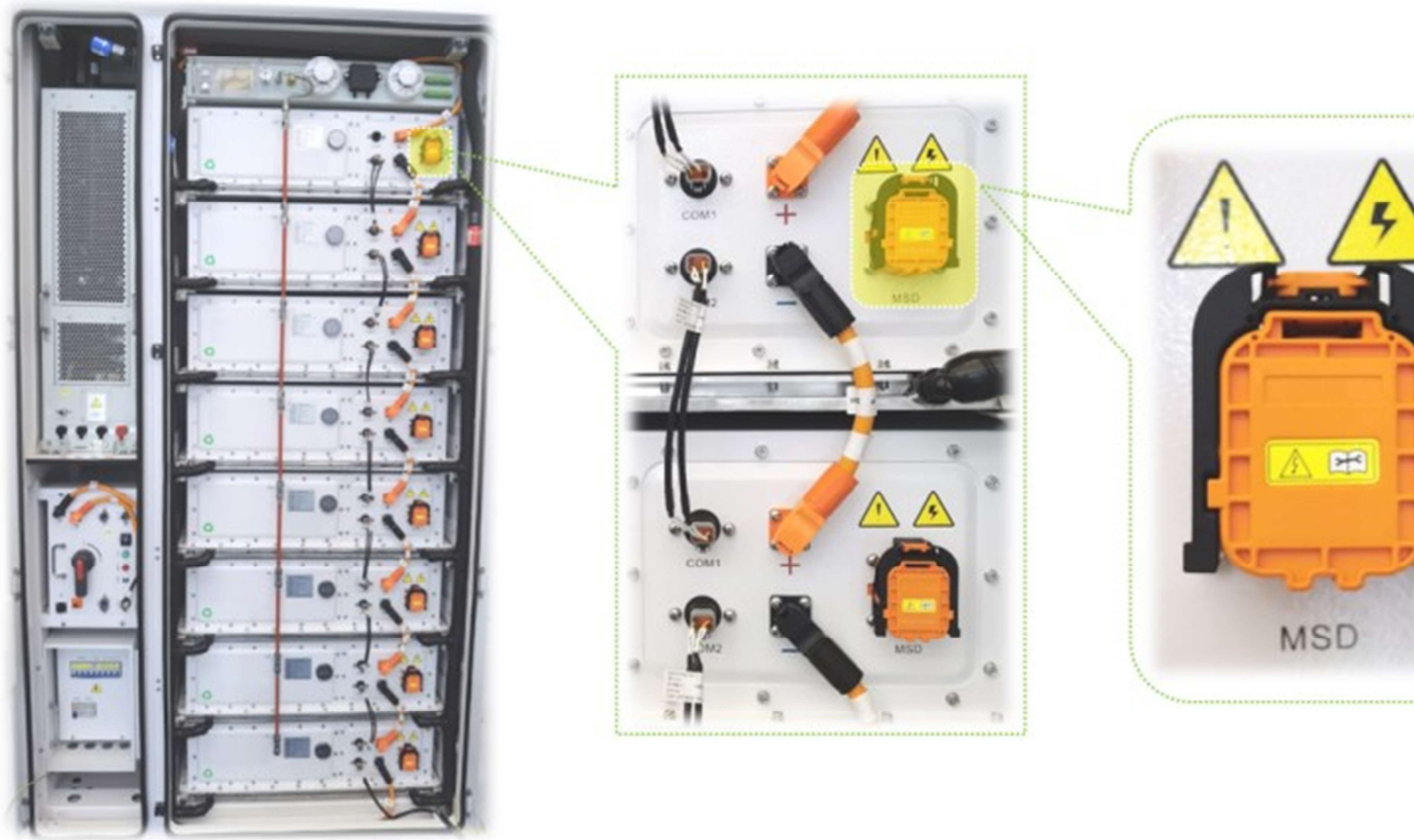
\* RS306-01-T5Z Series Fuses



**Features:** RS306-01-T5Z fuses comply with Rosh and have CCC, UL and CE certifications.

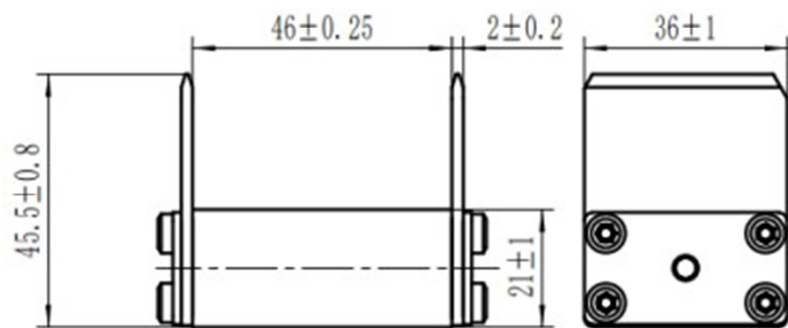
#### **IV. Fuses in ESS MSD**

MSD (Manual Service Disconnect) is a high-voltage connector with a fuse inside, which can achieve electrical isolation of high-voltage systems and also serve as short circuit protection. In another words, the fuse inside of MSD disconnect the high-voltage connection and protect the safety of personnel during maintenance of the ESS high-voltage system.



\*RSZ307-000-LGH (160A~400A) DC250V

\*RS306-000-EV (21A~400A) DC750V



**Features:** Compact size, designed for ESS MSD. The typical rated voltage of fuses in MSD include DC250V, DC750V and DC1, 500V with rated current range 21A~400A.

**In addition, in other energy storage systems with different principles or types, as well as other subsystem application scenarios such as high-voltage boxes, PCS, BMS, EMS etc., fuses as "Safety Guard" also play an important role. Fuse models include: RS309-MD, RSZ307-000-L2N, RSZ307-1-S5P, RSZ307-2-AT5Z, RSZ307-3-RAZ, RSZ307-5-W7P series etc...**